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13. ABSTRACT (Maximum 200 words)

This paper uses bivariate and logistic regression analysis to explore the psychosocial correlates of smokeless tobacco (SLT) use in a sample of 2,257 teenage military dependents. Separate regression models for males and females were built to explain trial and use of SLT. Results show female and male triers share five factors regarding SLT use--parental approval, peer approval, having tried smoking, relatives who use SLT, and athletic team membership. Male trial of SLT was additionally found to be associated with race, difficulty in purchasing SLT, relatives who smoke, current smoking, and the belief that SLT can cause mouth cancer. Male use of SLT was found to be associated with race, seeing a dentist regularly, SLT counseling by a dentist, parental approval, trying and current smoking, and grade level. In all models, trying smoking was the strongest explanatory variable. Relatives and peers exert considerable influence on SLT use. Few triers or users had received SLT counseling from their dentist despite high dental utilization rates.

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Psychosocial Factors Influencing Smokeless Tobacco Use by Teen-Age Military Dependents

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Using bivariate and logistic regression analysis, we explored psychosocial correlates of smokeless tobacco (SLT) use in a sample of 2,257 teenage military dependents. We built separate regression models for males and females to explain triers and users of SLT. Results show female and male triers share five factors regarding SLT use—parental and peer approval, trying smoking, relatives using SLT, and athletic team membership. Male trial of SLT was additionally associated with race, difficulty in purchasing SLT, relatives who smoke, current smoking, and belief that SLT can cause mouth cancer. Male use of SLT was associated with race, seeing a dentist regularly, SLT counseling by a dentist, parental approval, trying and current smoking, and grade level. In all models, trying smoking was the strongest explanatory variable. Relatives and peers exert considerable influence on SLT use. Few triers or users had received SLT counseling from their dentist despite high dental utilization rates.

Introduction

Over the past three decades, extensive research has been done on the psychosocial correlates of smoking in adolescents,¹ but comparatively little is known about the psychosocial correlates of smokeless tobacco (SLT) use among teenagers. Research on this topic is limited because prior to the mid 1970s, consumption of smokeless tobacco by adolescents was negligible (about 1% by males) and had remained constant for decades.² During the past 15 years, however, the use and experimentation with SLT by teenagers has risen.^{2,3} In a recent study on the prevalence of SLT use by military teenage dependents, we found that 28% of teenage males and 4.3% of teenage females had tried smokeless tobacco, with 5% of males and 0.3% of females reporting current use.⁴

The emerging literature on the psychosocial correlates of SLT use suggests that adolescent SLT use may be associated with a multitude of factors including demographic characteristics, father's education level, peer and parental influence, attitudes and beliefs about SLT, use of other substances (smoking, alcohol, and marijuana), risk taking and delinquent behavior, school performance, and participation in sports and in structured (e.g., church groups) versus unstructured (e.g., parties) activities.⁵⁻²⁵ Results across these studies, however, have not been consistent. These inconsistencies may be due to differences in analytical technique (bivariate, discriminant, and lo-

gistic regression analyses), sample composition, geographic location (urban versus rural), or the scope of variables studied.

Accordingly, we undertook this study to determine the psychosocial correlates of SLT use by military teenage dependents. This information will be helpful in devising appropriate intervention strategies to discourage SLT use by this group.

Methods

Data for this study come from self-administered tobacco use questionnaires that were completed by students attending on-post middle and senior high schools (grades 6-12) at Fort Knox and Fort Campbell, Kentucky, in February 1989. A detailed description of the sampling method and content of the survey instrument is provided elsewhere.⁴

For our analysis, we had a sample of 2,257 teenagers—1,081 females and 1,176 males. For each analysis, sample size varies due to non-response. Sample sizes are smaller for the regression rather than the bivariate analyses because regression models require that, for each respondent, every variable in the model must have a response.

In analyzing the data, we used both bivariate and logistic regression analysis. We elected to use logistic regression because, unlike bivariate analysis, logistic regression enables each member of a set of explanatory variables to have its association with the outcome variable evaluated in a manner which accounts for the effects of the other explanatory variables. However, we analyzed some data bivariately because it was not amenable to regression analysis.

In our analysis, we defined two distinct outcome (dependent) variables for SLT use—triers and users—by dichotomizing students' use of SLT as follows: trier or non-trier based on whether or not the student had ever tried smokeless tobacco, and user or non-user based on current consumption of smokeless tobacco. Because previous studies have shown that psychosocial correlates of SLT use differ between males and females,^{6,10,25} we analyzed the data separately for males and females. Three logistic regression models were built to explain risk-outcome behavior: separate male and female trier models and a male user model. A female user model was not attempted because too few females in the entire sample (three) reported current use of smokeless tobacco.

Prior to model building, the data were checked for multicollinearity. Then, in accordance with the logistic regression strategy advocated by Hosmer and Lemeshow, only explanatory variables that showed sufficiently strong bivariate relationships with the outcome variables (p value < 0.25) were entered into the initial main effects model. Next, backwards stepwise regression was done to eliminate nonsignificant explanatory variables. Following this, we checked for significant interactions and entered them in the model if present.²⁶ For

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final models, odds ratios for significant explanatory variables were calculated along with their 95% confidence intervals.

Based on findings from earlier studies,⁵⁻²⁵ we included the following explanatory variables in model building: demographic characteristics (grade, race, and sponsor's rank), knowledge of the adverse health effects of SLT, smoking status, parental and peer approval of SLT use, use of SLT by relatives, and membership on a school athletic team. Although age and grade both show strong bivariate relationships with the outcome measures, we selected to use only one of these variables (grade) in model building because the correlation between these two variables is so strong (0.9408) that including both of them in the model could give rise to multicollinearity.²⁷ In addition, we included the following variables which we thought might be related to the outcome measures: interval since last dental visit, SLT counseling with a dentist, and difficulty in purchasing SLT. A complete listing of the variables used in the logistic regression analyses is given in Table I. All variables are dichotomous (0/1).

Because of the nature of the responses elicited, a few explanatory variables were not well suited for regression analysis (e.g., why young people use SLT, most important source of information on SLT, etc.). We present bivariate results for these variables across the outcome measures. We also present bivariate results for attitude and knowledge variables across outcome measures because of their relevance to health education.

Results

Table II presents bivariate data on SLT attitude and knowledge measures. The results show that, in general, knowledge about the adverse effects of SLT are moderate. The most commonly known adverse effect is that SLT is harmful to the gums. There is very little difference in knowledge about the dangers of SLT use across SLT use status. Notable exceptions are that users are less likely to know that SLT is harmful to general health and causes as much or more harm than smoking, and that triers are more likely to know that SLT is harmful to the gums and can cause mouth cancer.

In contrast, differences in attitudes about SLT use across SLT use status are very pronounced. Users and triers give more favorable responses to these measures than non-users and non-triers.

Tables III and IV present significant coefficients along with corresponding odds ratios and confidence intervals in the final regression models explaining trial use of SLT by females and males, respectively. The sign on a coefficient indicates the direction of the relationship between the explanatory and outcome variables, with a positive sign indicating a direct relationship and a negative sign an inverse relationship. Odds ratio confidence intervals that include one are not statistically significant. However, if the interval includes one but is highly skewed, the effect may still be regarded as important.²⁶

Results show that females and males share five factors regarding trial use of SLT—parental and peer approval, trying smoking, relatives using SLT, and athletic team membership. Male trial of SLT is additionally associated with being white, difficulty in purchasing SLT, having relatives who smoke, current smoking, and a belief that SLT can cause mouth cancer.

TABLE I
VARIABLES USED IN SMOKELESS TOBACCO (SLT) USE MODELS

Dependent Variables
SLTUSE—current use of SLT
SLTTRY—ever tried SLT
Independent Variables
Demographics
MALE—male gender
GRADE—grade level in school
grade1—grade 6-7
grade2—grade 8-10
grade3—grade 11-12
WHITE—Caucasian race
SPRANK—sponsor's rank
rk1—enlisted
rk2—officer
rk3—warrant
Activity
TEAM—on a school athletic team
Knowledge
tf3—SLT can be addictive
tf4—dentists can tell SLT use
tf5—SLT is harmful to general health
tf6—SLT can cause high blood pressure
tf7—SLT is harmful to the gums
tf8—SLT can cause mouth cancer
LESSHARM—SLT causes less harm than smoking
Dental Health Behavior
SEEDDS—have seen a dentist within the past year
DISCUSS—dentist discussed SLT with me
Attitudes
tf1—advertising encourages smoking
tf2—advertising encourages SLT use
SAPPROV—most or some students at my school approve of SLT use
PAPPROV—my parents approve of SLT use
HARD—it is moderately or very difficult for minors to purchase SLT
Other Tobacco Influences
SMOKETRY—have tried smoking
SMOKENOW—currently smoke
RELSMOKE—have relatives who smoke
RELST—have relatives who use SLT

All of these factors are positively associated with SLT trial use except difficulty in purchasing SLT. Knowledge and demographics had no impact on SLT trial use by females and little impact on SLT trial use by males. Dental health behavior had no impact for either gender. Attitude and other tobacco influence variables exerted the greatest influence on SLT trial use by both genders.

For both genders, the strongest explanatory variable for trial use of SLT was having tried smoking (SMOKETRY). Females who have tried smoking were 8.6 times more likely to have tried SLT than females who have never tried smoking. Males who have tried smoking were 7.4 times more likely to have tried SLT than males who have never tried smoking. Athletic team membership (TEAM) and parental approval (PAPPROV) had a stronger impact on female trial use (odds 3.6 and 3.3,

TABLE II
KNOWLEDGE AND ATTITUDES OF DEPENDENT TEENAGERS REGARDING TOBACCO BY SMOKELESS TOBACCO USE STATUS

	Smokeless Tobacco Use Status				
	Triers (n = 368)	Non-Triers (n = 1,879)	Users (n = 57)	Non-Users (n = 2,189)	Total (n = 2,257)
Knowledge					
SLT can be addictive	75.3%	72.5%	75.4%	73.0%	73.1%
Dentists can tell SLT use	78.3%	74.2%	75.4%	74.9%	75.0%
SLT is harmful to general health	71.7%	73.2%	56.1%	73.4%	73.0%
SLT can cause high blood pressure	41.0%	32.8%	38.6%	34.1%	34.1%
SLT is harmful to the gums	86.7%	78.9%	82.5%	80.1%	80.3%
SLT can cause mouth cancer	86.7%	73.9%	79.0%	75.9%	76.1%
SLT causes as much or more harm than smoking	72.8%	76.5%	66.7%	76.2%	75.3%
Attitudes					
Advertising encourages smoking	51.9%	55.9%	47.4%	55.5%	55.3%
Advertising encourages SLT use	38.6%	37.7%	38.6%	37.8%	38.0%
My parents approve of SLT use	11.1%	5.3%	22.8%	5.9%	7.0%
Most students at my school approve of SLT use	62.8%	41.4%	75.4%	44.0%	45.3%
SLT is rarely or never difficult to buy	68.5%	50.0%	70.2%	52.6%	53.5%

TABLE III

LOGISTIC REGRESSION COEFFICIENTS AND ODDS RATIOS FOR FEMALE SMOKELESS TOBACCO TRIERS (N = 41 TRIERS, N = 889 NON-TRIERS)

Independent Variable	Coefficient	p Value	Odds Ratio	95% Confidence Interval
INTERCEPT	-5.83			
SAPPROV	0.75	0.030	2.12	(1.07, 4.21)
PAPPROV	1.19	0.052	3.29	(0.99, 10.9)
SMOKETRY	2.15	0.000	8.58	(3.52, 20.8)
RELSLT	0.94	0.005	2.56	(1.33, 4.99)
TEAM	1.27	0.000	3.56	(1.82, 6.98)

respectively) than on male trial use (odds 1.4 and 2.3, respectively).

Table V presents logistic regression results for male SLT use. The use model retains only four of the explanatory variables found in the trial model—WHITE, PAPPROV, SMOKENOW, and SMOKETRY. It also contains the dental health behavior vari-

TABLE IV

LOGISTIC REGRESSION COEFFICIENTS AND ODDS RATIOS FOR MALE SMOKELESS TOBACCO TRIERS (N = 289 TRIERS, N = 736 NON-TRIERS)

Independent Variable	Coefficient	p Value	Odds Ratio	95% Confidence Interval
INTERCEPT	-4.45			
SAPPROV	0.67	0.000	1.95	(1.39, 2.74)
PAPPROV	0.85	0.009	2.34	(1.23, 4.43)
SMOKETRY	2.00	0.000	7.39	(5.11, 10.6)
RELSLT	0.83	0.000	2.29	(1.64, 3.21)
TEAM	0.33	0.063	1.39	(0.98, 1.99)
WHITE	0.53	0.005	1.70	(1.17, 2.47)
tfB	0.84	0.001	2.32	(1.43, 3.79)
HARD	-0.41	0.020	0.66	(0.47, 0.94)
RELSMOKE	0.57	0.056	1.77	(0.99, 3.16)
SMOKENOW	0.98	0.000	2.66	(1.58, 4.48)

TABLE V

LOGISTIC REGRESSION COEFFICIENTS AND ODDS RATIOS FOR MALE SMOKELESS TOBACCO USERS (N = 52 USERS, N = 1,073 NON-USERS)

Independent Variable	Coefficient	p Value	Odds Ratio	95% Confidence Interval
INTERCEPT	-6.57			
WHITE	1.05	0.015	2.86	(1.23, 6.67)
SEEDDS	-0.64	0.057	0.53	(0.27, 1.02)
DISCUSS	1.48	0.003	4.4	(1.65, 11.6)
PAPPROV	1.08	0.011	2.9	(1.28, 6.8)
SMOKENOW	1.65	0.000	5.2	(2.61, 10.3)
SMOKETRY	2.95	0.004		
SMOKETRY = 0			1	
GRADE 1	0			
GRADE 2	1.02		2.77	(0.68, 11.2)
GRADE 3	3.27		26.3	(2.71, 258)
SMOKETRY = 1				
GRADE 1	1.66		5.26	(1.73, 16.0)
GRADE 2	2.68		14.6	(1.36, 156)
GRADE 3	4.93		138.4	(1.25, 15.367)
SCHOOL		0.001		
SCHOOL * SMOKETRY	-1.29	0.038		

ables (SEEDDS and DISCUSS) and an interaction between grade level in school (GRADE) and having tried smoking (SMOKETRY). No knowledge or activity variables appear in the SLT use model. The interaction is the strongest variable explaining male SLT use.

Because of the interaction between GRADE and SMOKETRY, an odds ratio for a given grade compared to the reference group must also account for smoking trial status. In this model, males who have never tried smoking (SMOKETRY = 0) and who are in grades 6-7 (GRADE 1) are the reference group (odds equal one). Thus, males who have tried smoking (SMOKETRY = 1) and who are in grades 6-7 (GRADE 1) are 5.3 times more likely to use SLT than the reference group. Males who have

TABLE VI
WHY YOUTHS USE SMOKELESS TOBACCO (SLT) AND THEIR MOST IMPORTANT INFORMATION SOURCES ON SLT

	Triers	Non-Triers	Users	Non-Users	Total
Why do young people use SLT?	(n = 362)	(n = 1,822)	(n = 55) ^a	(n = 2,128)	(n = 2,184)
Relatives, associates, or friends do	22.1%	22.2%	25.4%	22.1%	22.2%
Sports figures or country-western stars do	7.7%	5.7%	5.5%	6.0%	6.0%
Fad	6.9%	5.2%	12.7%	5.3%	5.5%
Influence of ads	2.8%	2.0%	7.3%	2.0%	2.1%
To be macho or grown up	21.3%	32.4%	7.3%	31.2%	30.6%
Curiosity, to try it	15.2%	14.8%	10.9%	15.0%	14.9%
Other	24.0%	17.7%	30.9%	18.4%	18.7%
Your most important information source on SLT	(n = 354)	(n = 1,813)	(n = 54) ^b	(n = 2,112)	(n = 2,170)
TV shows	14.7%	16.3%	7.4%	16.3%	16.0%
School	17.0%	16.3%	14.8%	16.5%	16.5%
Friends	18.6%	9.7%	18.5%	10.9%	11.1%
Parents or relatives	13.3%	14.2%	18.5%	13.9%	14.1%
TV or newspaper ads	13.0%	21.1%	11.1%	20.0%	19.7%
Books/pamphlets	7.1%	8.7%	11.1%	8.3%	8.4%
Health professionals	12.4%	10.8%	14.8%	11.0%	11.1%
Other	3.9%	2.9%	3.7%	3.1%	3.1%

^a52 males and 3 females.

^b51 males and 3 females.

never tried smoking (SMOKETRY = 0) and who are in grades 8–10 (GRADE 2) are 2.8 times more likely to use SLT than the reference group, and so on.

Tables VI–IX present bivariate results for a number of measures. Table VI describes the reasons why youths use SLT and their most important information source on SLT across SLT user status. Attitudes regarding the former are similar across all groups with two exceptions. First, while most users and triers attribute SLT use to some unspecified reason, non-triers and non-users attribute it to a desire for a macho or grown-up image. Second, users were more likely than other groups to attribute SLT use to fads and advertising.

All groups relied on a wide variety of sources to obtain information about SLT. However, triers and users were more reliant on friends and less reliant on TV or newspaper ads than non-users and non-triers. In addition, users were slightly more likely to rely on parents or relatives and less likely to rely on TV shows for SLT information than were other groups.

Table VII profiles reasons for starting, continuing, and quitting SLT use by triers and users of SLT. A desire to experience the taste and effects was the main reason triers gave for using SLT. The leading reason for users was unspecified. About one-third of both users and triers attributed starting SLT use to the influence of friends and relatives. Few cited music or sports celebrities or advertising as being influential.

Two-thirds of users say they continue to use SLT because they enjoy the flavor or taste. Only one-fifth claim they tried but could not quit. Among triers, over half attributed their influence for quitting to relatives or peers.

Dental utilization by the sample was very high (Table VIII). SLT users were less likely to see a dentist regularly than other groups. Among SLT triers and users who had seen a dentist within the past year, few had received SLT counseling from their dentist (Table IX).

Discussion and Conclusions

Due to differences in populations sampled, questionnaire content and wording, and analytical methods, it is difficult to compare the results of this study with various other adolescent SLT surveys. Even among studies using regression techniques, this survey was more comprehensive in scope than many earlier studies. Our survey is the first to include measures of dental health behavior and difficulty of purchasing SLT as explanatory variables for SLT trial and use.

Because the data are cross-sectional, not longitudinal, the direction of the relationship between the independent variables identified as associated with SLT use is unclear. That is, for many variables, it is difficult to say whether use of SLT preceded a trait or whether the trait preceded the use of SLT. However, for some variables, there is no doubt about the direction of causality (e.g., race and SLT use).

A major finding of this study is that overall knowledge about the adverse health effects of SLT by teenage military dependents is moderate. Roughly 80% of the study sample knew that SLT is harmful to the gums and 75% knew SLT can cause mouth cancer. This compares to over 90% knowledge of both facts by samples in other studies.^{10,20} Barely one-third of the study sample knew SLT can cause high blood pressure. Clearly, the knowledge base of dependent military school children about SLT hazards could be improved.

However, whether enhanced knowledge of the adverse effects of SLT would reduce SLT experimentation or use is speculative. Results from several studies suggest that it could.^{7,8,10,12,13,19,22,25} However, results from regression-based studies show that the impact of knowledge on SLT use was limited to female users⁷ and male triers.^{10,12} Moreover, its impact was much stronger on the former rather than the latter group. Knowledge was not a significant explanatory variable in

TABLE VII

REASONS FOR STARTING, CONTINUING, AND QUITTING SLT USE BY MILITARY DEPENDENT TEENAGERS

	Triers ^a	Users
Why did you start using SLT?	(n = 302)	(n = 53) ^b
Because friends were	26.2%	20.8%
Because sports or country-western stars were	3.6%	5.7%
Wanted to experience taste or effects	37.1%	20.8%
Because relatives were	10.6%	9.4%
To fight boredom	5.3%	9.4%
Advertising made it interesting	1.3%	1.9%
Other	15.9%	32.1%
Why did you continue using SLT?		(n = 39) ^c
Enjoy flavor or taste		66.7%
Like the effects		7.7%
Am "hooked"		12.8%
Because friends and associates still use it		12.8%
Ever tried to quit using SLT?		(n = 54) ^d
Yes and I did		38.9%
Yes but could not		18.5%
No		42.6%
What most influenced your decision to try to quit using SLT?	(n = 253)	
Parents or other relatives	16.6%	
TV or radio ads	4.3%	
Girlfriend or boyfriend	18.2%	
Friends	17.4%	
Health professionals	9.9%	
Books/pamphlets	3.6%	
TV shows	4.3%	
School	5.9%	
Other	19.8%	

^aNo response difference by gender.^b50 males and 3 females.^c37 males and 2 females.^d51 males and 3 females.

regression models for female triers or male users in this study; however, a knowledge variable was the fourth most significant explanatory variable for male trial use. Bivariate results showing lower awareness by users that SLT is harmful to general health and that SLT causes as much or more harm than smoking may reflect self-denial rather than a true lack of knowledge.

Our finding that parental and peer influences contribute significantly to SLT experimentation but are less important regarding SLT use is consistent with the findings of many surveys.^{6-8,10,13,14,17,18,20-22,24} We concur with the recommendations of these earlier studies that SLT intervention programs must incorporate social skills and assertiveness training to resist pressures to try or use SLT. Parental education should not be overlooked. As Marty et al. noted: "Perceived social support even in the form of apathy from parents may be a strong reinforcing factor."¹⁶ We further advocate that adolescents be taught how advertising tries to shape their behavior.

Admittedly, in this survey, few respondents gave advertising much credit for encouraging SLT use. Yet, as recent findings on smoking advertising illustrate, given the ubiquitous pres-

TABLE VIII

DENTAL UTILIZATION BY GENDER AND BY SLT USE STATUS

	Percent Seeing a Dentist Within Past Year
All females (n = 1,081)	80.8%
All males (n = 1,176)	76.0%
Total (n = 2,257)	78.3%
SLT triers (n = 367) ^a	73.3%
SLT non-triers (n = 1,870) ^a	80.0%
Female SLT users (n = 3)	0%
Male SLT users (n = 53)	62.3%

^aNo significant difference in dental utilization for SLT triers or non-triers across gender.

TABLE IX

DISCUSSION OF SLT USE WITH A DENTIST FOR SLT TRIERS AND USERS WHO HAVE SEEN A DENTIST WITHIN THE PAST YEAR

	Triers		Users ^a
	Male (n = 235)	Female (n = 34)	Male (n = 33)
Has your dentist ever discussed SLT use with you?	6.4%	0%	12.1%

^aNone of the three female SLT users had seen a dentist within the past year.

ence of tobacco advertising in our culture, youths may be unaware of its actual impact. In one study of the impact of cigarette advertising on young children, researchers found that 90% of 6 year olds could correctly identify the logo of Old Joe Camel for Camel cigarettes—as many as could correctly identify the logo for the Disney channel.²⁸ Other recent studies including 12–19 year olds demonstrated that approving attitudes toward cigarette advertisements seemed to precede actual smoking and affected brand preference among adolescents more than among adults.^{29,30} The connection between increased advertising of SLT and sales volume over the past two decades is well documented.²⁵

The association between smoking status and SLT trial or use found in this study has been reported in most previous research.^{5-7,9-12,15,17,18,24,25} Only two studies have found no association between SLT use and smoking.^{20,24} However, unlike this study, among the 14 regression models from seven studies that included smoking as an explanatory variable,^{6,11,12,15,17,24,25} only 4 identified smoking as the most significant explanatory variable.^{6,25} The leading significant explanatory variable, peer influence, was most significant in 6 of the 14 regression models.^{6,12,17,24}

The strong association seen between smoking and SLT trial or use in this study highlights the importance of linking these substances together in school health education programs. Many youths mistakenly believe that SLT is a safe substitute for smoking.²⁵ For these adolescents, health education may be effective in preventing SLT experimentation or use. However, for other youths, experimentation and use of SLT is just part of

a willingness to experiment with and use recreational drugs of any type.⁵ Changing the behavior of these individuals is less likely to be successful.

A link between SLT use and participation in team sports has been found to be significant by two investigators^{11,25} but not by another.²⁴ Its presence in this sample for male and female triers of SLT suggests that student athletes should be targeted for SLT intervention efforts. Some adolescents may mistakenly believe that SLT enhances athletic performance or may want to use SLT because many professional baseball and football players do.³¹

A major contribution of this study in explaining SLT use is the finding that access to SLT by adolescents is alarmingly easy and is a significant explanatory variable in male trial of SLT. Perhaps substantial reduction in SLT trial and use could be achieved if access were more limited. However, since we failed to ask what source of access users and triers have to SLT, we are not sure how this could be best achieved. It is already illegal for a minor to purchase SLT.²⁵ Either sellers are not strictly adhering to these laws or adolescents are acquiring SLT through friends or relatives who can legally purchase it.

The final major finding from this study is that one appropriate avenue for intervention against SLT use has been largely untapped. Results from this study show that few users or triers of SLT have received SLT counseling from their dentist, despite high dental utilization rates. Recently, the Surgeon General of the United States encouraged dental professionals to counsel youths about the hazards of SLT use.³¹ We endorse this stance and advocate that SLT counseling should be a part of routine dental examinations for all adolescents. Although SLT experimentation and use is predominantly a male activity, we urge that adolescent females be counseled because data from this study show that a significant number of females try SLT and that girlfriends play a major role in influencing SLT triers to quit.

In counseling dental patients, we endorse the Surgeon General's suggestion that SLT needs to be deglamorized. Dentists need to refer to it as "spit" rather than "smokeless" tobacco. "Smokeless" carries the connotation that SLT is a safe alternative to cigarettes³¹ and downplays the negative connotation that "spit" carries.

In conclusion, we wish to emphasize the urging by the Surgeon General and others that the issue of adolescent SLT use not be trivialized. As the President of the American Cancer Society recently stated, "Unless action is taken and taken now . . . we are on the verge of a wholly avoidable national epidemic caused by the use of smokeless tobacco."³¹ The results from this study highlight areas where SLT intervention programs targeted at teenage military dependents can be improved.

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